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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,746

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Ranjana C. Patel

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EXAMINER

HAMILTON, CYNTHIA

ART UNIT

PAPER NUMBER

1722

NOTIFICATION DATE

DELIVERY MODE

10/28/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/593,746	Applicant(s) PATEL ET AL.	
	Examiner Cynthia Hamilton	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/22/2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-10 and 12 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>06/22/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This application contains claims 1-6 drawn to an invention nonelected with traverse in the reply filed on 02 July 2009. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7-10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 7 as amended 22 June 2010, is found the newly added property requirement of the composition claimed "... that results in the composition, on curing with a non-coherent source of radiation, shrinking, in a linear direction, by less than 3% in length...". This is not taken as an intended use of the composition but as a property set forth to limit the composition claimed in some manner by applicants. However, applicants do not clearly set forth what kind of cure with respect to time or energy used, etc, nor do applicants clearly set forth what is measured such that a "length" is clearly understood to be measurable. Thus, with respect to the property added to claims 7-10 and 12 applicants have failed to specify the manner in which the measurement of shrinkage is made or upon what kind of curing conditions or shape conditions under which the object to be measured as to allow a worker of ordinary skill in the art to determine the metes and bounds of the claimed invention. The examiner gives as example the

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possible forming of a multilayer object as in the method of claim 1 which will be measured for shrinkage or a film of millimeters in length to be measured or the specific object of page 30 of the Specification as to be measured. The examiner notes that on page 30 reference is made to an SL 7000 machine and a method of WO 00/21735 for curing. The reference to WO 00/21735 is not considered part of the essential knowledge necessary to understand the limit of claim 7 because it fails as required by 37 CFR 1.57 to do so. From 37 CFR 1.57 :

Except as provided in paragraph (a) of this section, an incorporation by reference must be set forth in the specification and must:

- (1) Express a clear intent to incorporate by reference by using the root words “incorporat(e)” and “reference” (e.g., “incorporate by reference”); and
- (2) Clearly identify the referenced patent, application, or publication.

.....

“ Essential material ” may be incorporated by reference, but only by way of an incorporation by reference to a U.S. patent or U.S. patent application publication, which patent or patent application publication does not itself incorporate such essential material by reference.

“Essential material ” is material that is necessary to:

- (1) Provide a written description of the claimed invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and set forth the best mode contemplated by the inventor of carrying out the invention as required by the first paragraph of 35 U.S.C. 112;
- (2) Describe the claimed invention in terms that particularly point out and distinctly claim the invention as required by the second paragraph of 35 U.S.C. 112; or
- (3) Describe the structure, material, or acts that correspond to a claimed means or step for performing a specified function as required by the sixth paragraph of 35 U.S.C. 112.

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With respect to instant claims 7-10 and 12, the claimed invention is held indefinite because the manner in which to determine the amount of shrinkage as required to determine the scope of the claimed invention is too vague as to allow a worker of ordinary skill in the art to determine the scope of the instant invention.

5. Claims 7-10 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 7, applicants by amendment have changed the properties required for the first component by requiring "when cured in the presence of a photocuring initiator by exposure to UV radiation.... the acrylate is cured within 50 milliseconds...". The original claims referenced this property to be required of the "the first component". As claim 9, now adds more than acrylates to "the first component" then the difference between curing the "acrylate" alone instead of the "first component" is clearly different. There is no support found for curing only part of the first component to obtain the speed of cure desired in the original disclosure. The examiner does believe that there is support for the first component and that an acrylate can be part or whole of the first component but when mixing either of the options in claim 7 with the acrylate to form the first component, there is no support for only part of the first component having the speed of cure required. Thus, with respect to instant claims 7-10 and 12, workers of ordinary skill in the art would not have recognized applicants having full possession of the scope of composition now claimed in their original disclosure.

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6. Claims 7-8 and 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinmann et al (DE 44 40 819 A1) as evidenced by machine translation of DE 44 40 819 A1 in view of Davies et al (US 4,283,480) and Hein et al (4,248,960). With respect to instant claims 7-10 and 12, Steinmann et al teach compositions which overlap that of instant compositions wherein the subgenus of acrylate and thiol compositions overlapping at 80% of acrylate and 10 - 15% of thiol is disclosed but no mention of the cured property of shrinkage is disclosed. Steinmann et al fails to teach the speed at which the acrylates cure with all photoinitiators but such is an inherent property of the acrylate and the photocuring initiator combination and since acrylates of the same general nature are pointed to by applicants as having the required cure properties on pages 17-19 the acrylates of Steinmann et al are held to inherently have the property of curability in the instant range with some photocuring initiator in the ultraviolet range. That thiols do reduce shrinkage when cured with acrylates is known in the art of photocuring. Davies et al discloses the formation of solder resist compositions which are without shrinkages which are comprised of a photoinitiator, a poly thiol acting as a chain modifier and a polymer with acrylate groups. The acrylates of Davies et al include those of col. 4, lines 20-39. the polythiol chain modifier of Davies is disclosed to further crosslink the compositions upon cure. Davies et al in comparing compositions with the chain modifier and without in col. 7 show marked difference in peeling thus pointing toward more problems with shrinking which would cause peel problems. Hein et al in column 3-6, teach the formation of over-lamina compositions wherein polythiol is added to acrylate compositions to give controlled rapid curing resulting in printing plates with good dimensional stability. In columns 11-12, Hein et al disclose their plates have upon cure less cupping and curling thus less shrinkage due to the polythiols present Thus,

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with respect to instant claims 7-8 and 10 and 12, wherein the ranges of acrylate and thiol combined along with other acrylates fillers, stabilizers, etc, combined in Steinmann et al which overlap that of the instant compositions to form the molding composition of Steinmann et al would have been prima facie obvious to reduce curl in stereo lithographically formed objects as indicated by the prior art teachings of Davies et al and Hein et al when combined with acrylates. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Werthheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 UAPQ2d 1934 (Fed. Cir. 1990). See particularly MPEP 2144.05. In the machine translation of DE 44 40 819 A1, see particularly page 4 of 5, paragraphs 5-8.

7. Applicant's arguments filed 22 June 2010 have been fully considered but they are not persuasive. Applicants argue that Steinmann et al disclose in Example 1 a high level of shrinkage of 14.4%. No such number is found in Steinmann et al. What is found is Elongation break 14.4%. Elongation break is not a measurement of shrinking but of elasticity. Applicants point to their own specification and examples but in doing so point to specific test parameters for shrinkage which are not part of the instant invention thus have little weight in removing prima facie obvious rejections because of the lack of clarity with respect to the property set forth in the instant invention. Only one specific test for shrinkage is shown by applicants, not all tests falling within the parameters claimed. The rejection stands as modified.

8. Claims 7-8, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayakawa et al (US 2003/0118941 A1). With respect to instant claims 7-8, 10 and 12, Hayakawa et al teach compositions in Examples 1-3 and shown in Table 1 wherein acrylate and

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mercaptan compound are mixed within the instant ranges set forth and yield compositions when cured. What is not present is a stabilizer. However, in [0059] to [0060] such is an optional additive as a polymerization inhibitor and would have obviously been added to do perform this function in the compositions explicitly set forth by Hayakawa et al, thus making obvious the instant compositions which would yield compositions without birefringence when cured and which would yield compositions making obvious the instant composition as set forth in instant claims 7-8, 10 and 12 wherein the percentages of compounds overlap.

9. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al in view of Steinmann et al (DE 44 40 819 A1). With respect to instant claims 7-8, the composition of Example 4 of Miller teaches all of the instant composition with the exception of a stabilizer and referencing the inherent properties of pentaerythritol tetraacrylate with respect to how fast it cures and the shrinkage of the final products cured from Example 4. However, the addition of stabilizers to acrylate compositions to avoid premature curing is well known in the art as exemplified by Steinmann et al in [0059] to [0060] such is an optional additive as a polymerization inhibitor and would have obviously been added to do perform this function in the compositions explicitly set forth by Miller et al, making obvious at least one species of the instant composition to form the cured products of Miller et al.

10. Applicant's arguments filed 22 June 2010 have been fully considered but they are not persuasive. Applicants argue Miller et al does not disclose a stabilizer. The examiner agrees so added above the rejection showing why such an addition would have been prima facie obvious.

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11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331.

The examiner can normally be reached on Monday through Friday 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Hamilton/
Primary Examiner, Art Unit 1722

October 25, 2010
12.